Department of Marine Resources

Public Health Division

ANNUAL REPORT

2002

Prepared by: Amy M. Fitzpatrick
Director

The mission of the Public Health Department of the Bureau of Resource Management, Maine Department of Marine Resources, is to implement and manage a shellfish program to protect public health by assuring that shellfish is safe for human consumption.

The Public Health Division of the Department of Marine Resources, Bureau of Resource Management is comprised of the Growing Area Classification Program, the Plant Sanitation Program and the Biotoxin Monitoring Program. The Division is responsible for properly evaluating shellfish growing areas on a continuing basis to protect the public health and to prohibit the harvest of all shellfish that do not meet National Shellfish Sanitation Program (NSSP) standards. Identifying pollution sources that may be corrected in order to increase the amount of shellfish producing areas open to harvesting. Implementing a biotoxin-monitoring program to detect the occurrences of Paralytic Shellfish Poisoning (PSP), Diarrhetic Shellfish Poisoning (DSP) and Amnesiac Shellfish Poisoning (ASP) and to close shellfish harvest areas as necessary to protect public health. As a complement to this monitoring, coordinate the use of volunteer monitoring for water quality and phytoplankton. An additional responsibility is to implement and conduct a wholesale shellfish dealer inspection and certification program under the auspices of the NSSP.

The **Growing Area Classification Program** is responsible for properly classifying the state's shellfish growing areas to allow for the commercial and recreational harvest of marine bivalve mollusks; clams, mussels, oysters, quahogs, whole scallops, razor clams et.al. The state has two offices and supporting laboratories; one in Boothbay Harbor and the other in Lamoine. Current staffing limits the amount of monitoring effort and cannot adequately address the ~7,000 miles of shoreline. There are 2 water quality specialists and one scientist per office.

The Water Quality labs conduct microbiological testing in support of the Maine Shellfish Sanitation Program under the mandates of the US Food and Drug Administration, the Interstate Shellfish Sanitation Conference (ISSC) and the National Shellfish Sanitation Program (NSSP). The Boothbay Water Quality lab is staffed by Gail Parsons, microbiologist, Nancy Hurst and Wayne Weeks, marine resource technicians with both labs under the supervision of Mercuria Cumbo, Microbiologist II.

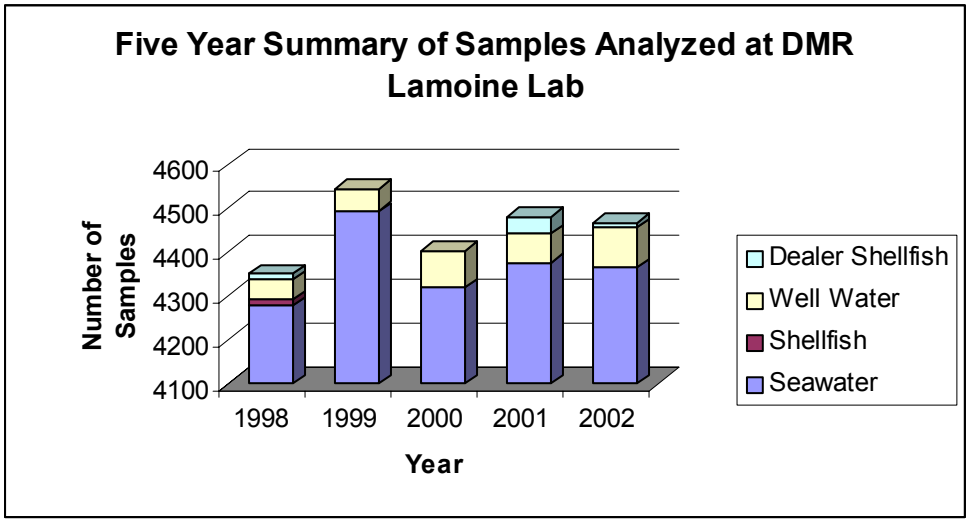
The Growing Area Classification staff in Boothbay Harbor, including Jan Barter, Marine Resource Scientist, Fran Pierce and Laura Livingston, Marine Resource Specialists, survey and sample the area from the NH border to Cape Jellison, ME. The Growing Area Classification staff in Lamoine survey and sample the area from Stockton Springs, on the western side of the Penobscot River, to the head of tide in Calais, on the Canadian border. The types of samples processed include seawater, well water, pollution sources and shellfish. Most growing area sampling is done from shore (vehicles) with a few sites on offshore islands and at deep water fishing areas. Approximately 70 water samples are processed daily with well waters and shellfish samples tested as needed. Shoreline surveys are scheduled on a 3-year rotation, with specific areas reviewed if necessary (see schedule attachment).

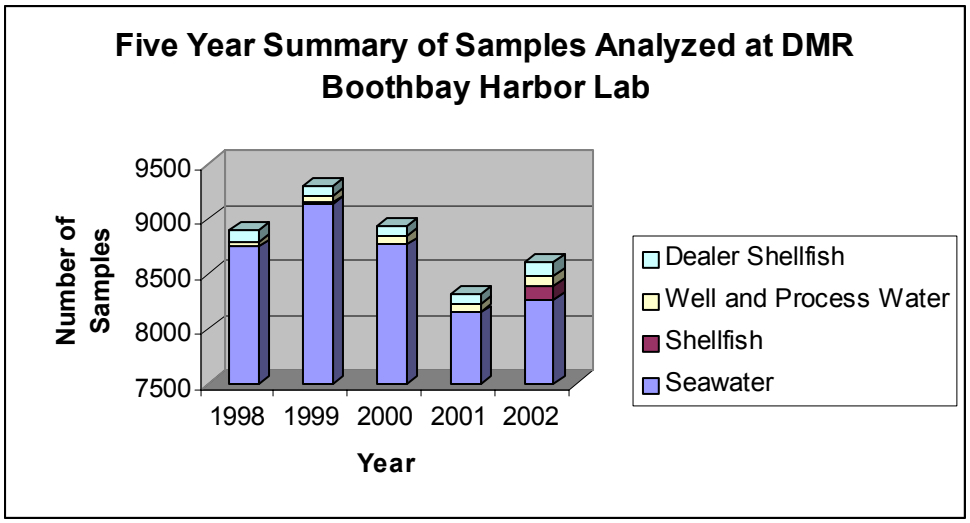
The labs operate five days per week from mid October to mid March. From mid March to mid October the Boothbay Harbor lab is open six days per week to allow for additional testing during the months of heaviest sample collecting. Gail Parsons and Nancy Hurst work full time in the lab. Wayne Week's work hours are split between lab duties and fieldwork. During 2002, approximately one third of Wayne's time was spent in the field picking up samples from volunteers, collecting samples, conducting sanitary surveys and assisting the Biotoxin Lab.

Mercuria Cumbo, Microbiologist II, performs the Lamoine lab work with the assistance of Robert Goodwin, Marine Resource Scientist, John Fendl and Hannah Smith, Marine Resource Specialists. The microbiologist also supervises the activities of the Boothbay Water Quality Lab.

Seawater samples are analyzed for fecal coliform by the NSSP approved multiple tube fermentation (MPN) method using modified A1 media. Shellfish samples are analyzed for fecal coliform by an MPN method using Lauryl Tryptose (LT) and EC media and aerobic plate counts. Shellfish dealer well water and process waters are analyzed for total coliform by one of two different methods, MPN using LT and transferring to Brilliant Green media or Idexx Colilert.

The Boothbay Lab took part in several different studies this year. Shellfish and seawater were tested for fecal coliform to determine recovery periods following rainfall. 105 shellfish samples were analyzed requiring weekend work and a great deal of analyst time both for media preparation and preparing the samples for testing. The Lab initiated a study to compare two different medias for MPN fecal coliform testing of shellfish. One media (LT/EC) requires two nights of incubation and is the approved method and the other media (A1) requires overnight incubation. The third study was comparative testing of two methods for fecal coliform in seawater, one the approved MPN method and the other a membrane filtration test method that is under consideration by the ISSC and the FDA as an approved method.





*Specific information regarding the types and amounts of samples and tests conducted at each laboratory can be found in Attachment A and Attachment B.

A new initiative started in 2002 is conditional area verification studies, which were implemented in the St. George River and the Medomak River. The 1999 version of the NSSP Model Ordinance references verification studies that are needed to demonstrate that "…sufficient time has elapsed to allow the shellstock to reduce pathogens that might be present to acceptable levels." When a conditional area management plan is violated, this study may be used to establish criteria for reopening based on coliform levels in the water. Studies had not been completed in any of our rainfall conditional areas, which are based on non-point source pollution. In the absence of a study the area is not to open in less than 14 days after a closure. If a conditional area is to be opened in less than the 14-day mandatory closure we must have a study in place to prove the reduction of contamination within shellstock.

Another 2002 project is a hydrographic study, which was conducted jointly by the DMR, USFDA and the MA Division of Marine Fisheries for the Yarmouth, Waste Water Treatment Plant (WWTP) effluent that discharges into the Royal River and impacts the Cousins River and Casco Bay. The project included a tracer dye study of travel time, dispersion, and dilution, using a continuous dye injection into the WWTP discharge. The final report for the project is expected by summer 2003.

Fran Pierce and Wayne Weeks conducted a storm drain study along the Thomaston waterfront during the 2001 and 2002 sampling seasons. When the new Thomaston treatment facility went on line in December of 1997, the storm drains were kept separate from the new wastewater treatment lines. However, the water quality scores along the immediate Thomaston waterfront were still elevated. By using a combination of water sampling and optical brightener pads in all of the streams and storm drains that enter the harbor, they were able to identify three lines where wastewater was still entering the discontinued lines. The treatment plant staff worked very cooperatively with the DMR staff to assure that all of the problems that were identified were fixed. Water sampling at these lines in ongoing by both Thomaston treatment and DMR staff to assure that all of the problems have been found. Phil Garwood from D.E.P also assisted with this study.

The following is a summary of closure and conditional area activity for 2002:

Western Maine Closure Activity

- Repeal and promulgation of C17B, Maquoit Bay, Brunswick &Freeport, closes the head of Bay due failing scores also increases size of conditional area south to Goose Pt.

- Repeal and promulgation of C27, St. George River, upgrades Big Cove & the Potato Patch from CP to CA based on rainfall, closes part of Smith Cove due to failing scores

- Repeal and promulgation of C26, Medomak River, removes STP CA now that plant is out of river also closes Dutch Neck ramp due to failing scores

- Repeal and promulgation of C13, Spurwink River, changes dates of seasonal closure to 12/1 - 5/31

- Repeal and promulgation of C31B, opens an area south of Great Spruce Head in Northport

- Repeal and promulgation of C14, Portland - Falmouth Area, reclassifies Mackworth Cove from seasonal to CA based on proper functioning of Falmouth & Westbrook STP

- Repeal and promulgation of C20H, Lower Kennebec River, makes Drummore Bay, Back River & the middle of Todd Bay prohibited, Squirrel Pt. flats & Parker Head seasonal 5/15-9/30 and opens lower river with no condition

- Repeal and promulgation of C28I, Weskeag River, closes 2 sections the Weskeag due to failing water scores.

- Repeal and promulgation of C18B, New Meadows River, opens an area south and east of Kings Pt. after problems found during survey were corrected

- Repeal and promulgation of C4A, Perkins Cove Ogunquit, reduces closure so that only Perkins Cove itself is closed

- Repeal and promulgation of C18D, Eastern Baileys, Orrs Island & Western Quahog Bay, closes Mill Cove - due to failing septic, also opens Orrs Cove- OBD's removed, seasonally 10/1-4/30 based on boats

- Repeal and promulgation of C2, York River, expanded marina closure due to FDA marina review

- Repeal and promulgation of C28I, Weskeag River, administrative - reconfigures lines & makes upper restricted for oysters only

- Repeal and promulgation of C13A - Spurwink River to McKenney Pt., Repealed, area opened as a result of shoreline survey and data analysis

- Repeal and promulgation of C18C, Mere Pt. Neck and Birch Island, enlarges marina closure around Paul's marina due to review, also encompasses remaining closed area from C18G which is repealed

- Repeal and promulgation of C18G, West shore of Birch Island, Repealed remaining closed area now part of C18C, due to shoreline survey and data analysis

- Repeal and promulgation of C20H, Lower Kennebec River, closes Hunniwell Cove due failing septic systems

There was one **Flood Closure** in the southern portion of the State, Small Pt., Phippsburg to Owls Head Light, Owls Head, **9/16/02 - 9/20/02**

Eastern Maine Closure Activity

- Repeal and Promulgation of C36, Penobscot and Bagaduce Rivers, increase size of Northern Bay closure from identified pollution point

- Repeal C37F, Stave Island, Little Deer Island, area meets open-approved criteria

- Promulgate C39B, Flye Point, Brooklin, failing water scores

- Promulgate C49B, Carrying Place, Hancock, failing water scores

- Repeal C49E, Mud creek, Lamoine, area meets open-approved criteria

- Promulgate C53B, Western Bar Island, Milbridge, identified pollution point source

- Repeal C54F, Popplestone Beach, Jonesport, area meets open-approved criteria

- Repeal and promulgation of C58C, Pirates Creek, Lubec, reduction of closure size, removal of OBDs

- Repeal C54P, Cow and Calf Points, Roque Bluffs, removal of OBDs and area meets open-approved criteria.

There was one **Flood Closure** in the eastern portion of the State, Owls Head Light, Owls Head, to the Canadian Border from **12/15-02 –12/18/02.**

Eastern Maine Conditional Area Activity

- C55 Machias and East Machias Rivers, WWTP, x3 closures
- C36 Bagaduce River, no closures
- C40 Union River, no closures
- C39 Blue Hill Harbor, WWTP, no closures
- C39F Benjamin River, seasonal x1
- C50 Sorrento, seasonal x1
- C52F Birch Harbor, seasonal x1
- C44A Somes Harbor, seasonal x1

Western Maine Conditional Area Activity

- C1 Piscataqua River, WWTP, x1
- C1, Piscataqua River, seasonal x1
- C1B, Spruce Creek, WWTP, x1
- C2, York Harbor, seasonal x1
- C4, Ogunquit River, seasonal/WWTP, x2
- C5, Webhannet River, seasonal x1
- C8, Little River, seasonal x1
- C8A, Paddy and Cross Creeks, seasonal x1
- C9, Biddeford Pool, seasonal x1
- C9, Old Orchard Beach, seasonal x1
- C13, Spurwink River, seasonal x1
- C14, Presumpscot River, WWTP, x1
- C14, Mackworth Cove, WWTP, x1
- C14, Falmouth Foreside, seasonal, x1
- C16, Cousins and Royal Rivers, WWTP, no activity
- C16, Cousins and Royal Rivers, rainfall, x2
- C17, Harraseeket River, WWTP, x3
- C17 Harraseeket River, seasonal x1
- C17B, Maquoit Bay, rainfall, x6
- C18, Basin, Ash and Stover Coves, seasonal x1
- C18B, New Meadows River, seasonal x1
- C18B, New Meadows River, rainfall, x8
- C18C, Mere Pt. Neck, marina x1
- C18D, Card and Orrs Cove, seasonal x1
- C20, Hall Bay, seasonal x1
- C20H, Lower Kennebec, seasonal x1
- C20H, Lower Kennebec, rainfall x3
- C22, White Island, seasonal x1
- C25, Damariscotta River, WWTP, no activity
- C26, Medomak River, rainfall x8
- C27, St. George River, WWTP/rainfall x5

Growing Area Classification Program FY 2003 project plans:

Sewage treatment plant closure reviews so that the prohibited area encompasses an area with a 1000:1 dilution. Recent guidance from the USFDA has indicated the need to ensure the prohibited area is sufficient to protect public health from viruses and other human pathogens that are not killed off by chlorination or UV disinfection.

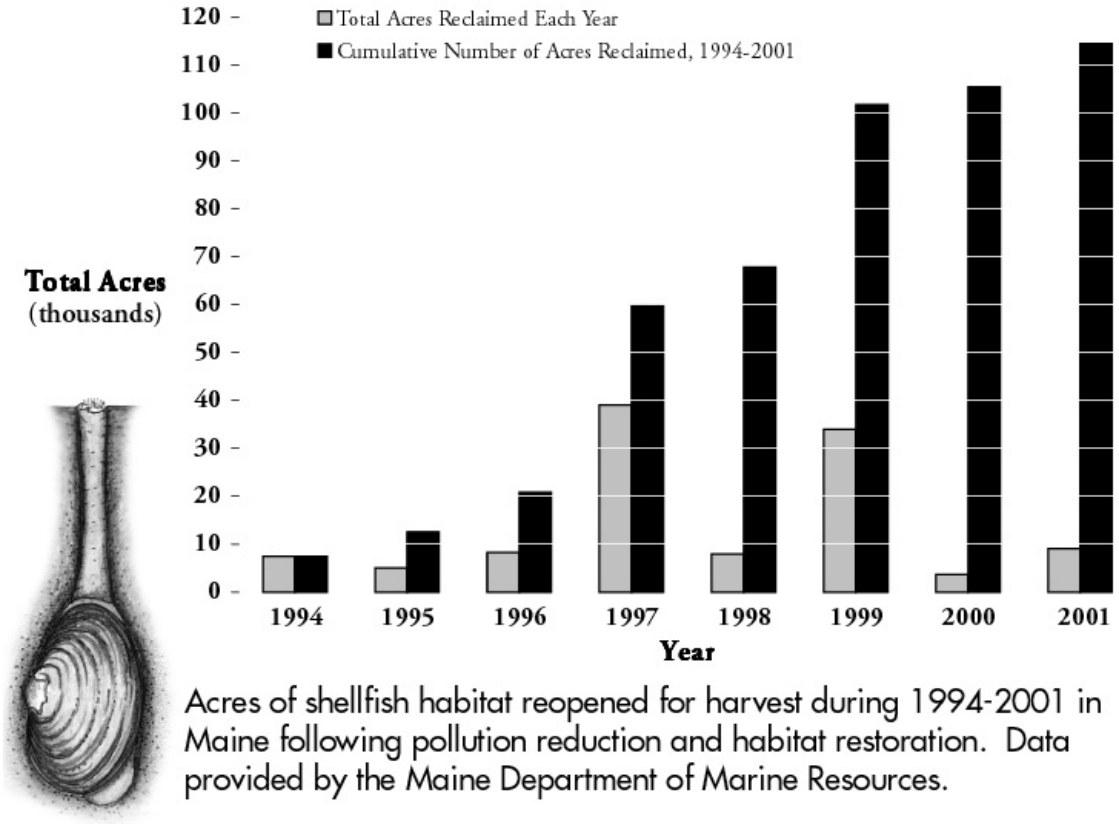
Additional hydrographic studies will be conducted with other agencies to ensure proper closures around wastewater treatment plants. The USEPA and the ME DEP have committed to a dispersion and dye study for the Harraseeket River, Freeport. The USFDA has committed to the NH DES and the ME DMR to conduct a similar study on the Piscataqua River on the ME – NH border.

Volunteer involvement has increased steadily since 1991 when citizens first began assisting DMR with water quality sample collection. That program has expanded from about 10 volunteers in 1991 to approximately 94 volunteers in 2002. In 2000, the **Volunteer Water Quality Monitoring Program** adopted a new Volunteer Training and Certification Program to ensure that all volunteer data meets the DMR quality assurance and quality control standards. The Program requires all volunteers to undergo annual training during which they must demonstrate their proficiency with sampling protocols and field observation skills in order to be certified for the sampling season. Program coordinator, Sherry Hanson reports that in 2002 the volunteers assisted the DMR by collecting 37% of the water samples analyzed at the laboratories in West Boothbay Harbor and Lamoine.

- Volunteers collected 4,295 water samples or 37% of the 11,537 samples processed by the two labs.
- Volunteers collected samples at 652 sample stations or 37% of the 1775 stations monitored statewide.
- Volunteers sampled in 57 municipalities or 46% of the 124 coastal municipalities with shellfish growing areas.

Legislation was passed entitled " An Act to Allow Qualified Shellfish Harvesters to Continue to Sample Water Quality" after a policy change that prohibited the practice. Commercial shellfish license holders who comply with the Public Health Division's quality assurance/quality control certification requirements and receive training from the division may serve as volunteer water quality samplers. In addition DMR staff will accompany volunteers at least two times per year, volunteers have been instructed to sample at as many tide stages as possible and not just at high tide and that the random sample schedule must be kept unless it is a matter of personal safety.

In light of the limited staff, the program has been recognized for several years in meeting or exceeding Governor King's mandate via the Measures of Growth Council benchmark: ***The number of acres of estuarine areas not suitable for shellfish harvesting, 257,908 acres in 1995, will decrease to 100,000 by 2005.***



Acres of shellfish habitat reopened for harvest during 1994-2001 in Maine following pollution reduction and habitat restoration. Data provided by the Maine Department of Marine Resources.

Chart provided by Ethan Nedeau of BIODRAWVERSITY

However, the prohibited acreage as of December 2, 2002 shows a decrease in the available acreage from 2001 of 418 acres, leaving the total amount of closed acreage at 156,374.

The **Horseshoe Crab Survey** continued in 2002 with volunteers assisting DMR for the second year. Thirty-five volunteers surveyed for 10 days in May and June at 9 breeding sites. Some of these volunteers also visited as many as 20 other locations to search for additional significant breeding sites.

The **Shellfish Plant Sanitation Program** goal is to maintain the safety of shellfish intended for human consumption through facility and conveyance inspections and the evaluation of processing methods. Currently there are three staff members who inspect, train and conduct food borne illness investigations throughout coastal Maine.

There has been a slight increase in certified shellfish dealers since last year. As of December 2002, there were 150 certified shellfish dealers.

The US FDA 2002 Evaluation of the Plant Sanitation Program found that we meet the requirements of the NSSP Model Ordinance. FDA also added that the DMR continues to improve their plant inspection program and has fully implemented the HACCP requirements of the NSSP. HACCP and sanitation related deficiencies

are placed on detailed corrective action schedules and when required administrative action has been applied to obtain compliance. No additional FDA follow-up will be required as a result of the FY 2002 FDA Plant Sanitation Program evaluation.

Inspection staff members participated in several illness investigations and shellfish product recalls in 2002. Details are as follows:

- On June 24, 2002 a 29-year-old white male consumed six (6) raw oysters on the half shell as an appetizer. The New Hampshire resident consumed the oysters at a restaurant in Kittery Point, Maine. The illness was confirmed to be Vibrio parahaemolyticus and the shellfish was identified to have originated in Delaware Bay, New Jersey.

- On July 3, 2002 a 30-year-old white female consumed steamed soft-shelled clams as an appetizer. The New Hampshire resident consumed the clams at a restaurant in Chichester, New Hampshire. The illness was confirmed to be Vibrio parahaemolyticus and the shellfish was identified to have originated in the Sheepscot River, Maine.

- On September 15, 2002 a 71-year-old Japanese female consumed raw oysters as an appetizer. The Maine resident consumed the oysters at a restaurant in Portland, Maine. The illness was confirmed to be Vibrio vulnificus and the shellfish was identified to have originated in harvest area A-2 in Louisiana.

- The Fish, Seafood and Production Division of the Canadian Food Inspection Agency (CFIA) notified the DMR on July 26, 2002 that shellfish recently distributed from New Brunswick, Canada into Maine contained elevated levels of PSP. Samples showed levels to be more than twice the acceptable tolerance limit of 80ug/100g. The CFIA requested assistance with locating 97 gallons of shucked shellfish as part of this recall.

The **Biotoxin Monitoring Program** had a very quiet 2002. Western Maine experienced slight Paralytic Shellfish Poisoning (PSP) toxicity resulting in one closure for mussels and carnivorous snails enacted on May 10. This closure extended from Bald Head, Cape Small, Phippsburg to Jaquish Island, Harpswell. The closure was repealed on August 7.

Sentinel buoys were constructed and deployed for the first time in 2002 for both eastern and western Maine to obtain biotoxin data from stations further offshore than the routine land based, tide dependant sampling stations. In eastern Maine the sentinel buoy stations showed toxicity before the phytoplankton bloom reached the shore based sampling stations. This is a promising first attempt at an early warning system to be used in conjunction with the phytoplankton monitoring.

Low levels of Amnesiac Shellfish Poisoning (ASP) or domoic acid have been found in mussels in both eastern and western Maine. Scallops statewide are high in ASP. The DMR has been anticipating using new test strips developed by Jellet Biotek out of Canada to determine the presence or absence of the ASP toxin. Currently the only testing method available to the DMR is to send samples to the USFDA headquarters in Washington, DC. The DMR will continue to monitor phytoplankton and use the new test strips to determine if ASP is present in Maine shellfish.

Diarrhetic Shellfish Poison (DSP) monitoring is ongoing coast-wide with most of the samples being processed in the fall and winter months at the Boothbay Harbor laboratory. It is hopeful that training of Lamoine staff will take place in the winter of 2002-2003 so that sample preparation can be ongoing in both laboratories.

The new surge of mussel raft aquaculture has presented new concerns to the biotoxin-monitoring group. These mussels are in continuous contact with phytoplankton and have the potential for being more toxic and toxic sooner than mussels that are in beds closer to shore. The biotoxin monitoring group will have to develop a new method for sampling. The DMR met with aquaculturists in the spring of 2002 and discussed the implications of different sampling protocols.

The Boothbay Harbor biotoxin laboratory processed 1748 samples in 2002.

The **Maine Phytoplankton Monitoring Program** (http://www.ume.maine.edu/ssteward/phyto.htm) citizen volunteers monitored 40 sites from Kittery to Eastport for potentially toxic phytoplankton as a first-alert mechanism for the DMR Biotoxin Monitoring Program. In 2002, twelve new volunteers joined the program. These new volunteers include aquaculturists (mussel raft and oyster), a home-school family and youth, an Island Institute Fellow, an AmeriCorps member, a retiree and a municipal conservation committee member. In 2001, there were 38 volunteers actively participating in the program. In 2002, a total of 50 volunteers participated.

A new component of the Maine Phytoplankton Monitoring Program was funded through a Univerisity of Maine Cooperative Extension grant to train aquaculturists to monitor phytoplankton at their lease sites in conjunction with the rest of the monitoring program. To date, three aquaculturists are volunteers with the program and are currently monitoring. Additional aquaculturists will be trained to begin monitoring in the spring of 2003.

Monhegan Island's volunteer phytoplankton monitor identified *Alexandrium* in the water column a week before mussels demonstrated toxicity. There is a permanent closure around Monhegan Island for biotoxins but samples were processed and the event lasted from May 31-July 2. It is very exciting that the volunteer monitor identified the bloom before it reached the shellfish as the phytoplankton monitoring has been identified as an early warning system in the biotoxin contingency plan.

We were fortunate this year to have two 6 month project position Scientist I's to assist in processing samples in the laboratory. In addition, we had our seasonal aides and 2 contract employees to assist in sample collection.

Other exciting accomplishments:

Laboratory Element

- The DMR Shellfish Laboratory successfully implemented a split sample proficiency program, which is becoming nationwide in scope. This proficiency program is based on the analysis of water samples with counts in the range important to the Shellfish Program and is designed to indicate differences in analytical performance among it 19 participating laboratories. This is the only program of its kind and has potential for use internationally.

- Mercuria Cumbo, DMR Microbiologist, along with other Northeast Laboratory Evaluation Officers and Managers (NELEOM) have been accepted by the *Journal of Food Protection* to publish their manuscript, titled Modification of an Approved Medium for Fecal Coliform Detection in Seawater: A-1 Medium minus Salicin.

- The NELEOMs received the Food and Drug Administration's Commissioner's Special Citation for achievement. The award was presented for sustained and continuous support of FDA and the National Shellfish Sanitation Program by advancing uniformity, ensuring consistent policies and increasing trust in laboratory procedures and practices.

- Members of the Marine Biotoxin Monitoring program hosted the 5th Biotoxin Workshop in the Boothbay Harbor facility on September 24 and 25, 2002. The workshop encouraged interaction between state and Federal agencies, industry and academia. The workshop included participants from the New England Region and Canada.

Growing Area Element

- Two staff members attended the Cormix training in Dallas, TX in January 2002. The training is to be used in conjunction with dye studies to evaluate point-source pollution.

- The water quality staff has initiated two rainfall conditional area verification studies. These studies are designed to show that the individual shellfish are experiencing a reduction in contamination following heavy rainfall events.

- The water quality staff is actively trying to establish a standard format for the computerized maps that are used during sample collection. For consistency, the patrol officers and harvesters will use the new formatted maps. This approach will ensure that any change to the classification of shellfish harvest areas is disseminated equally to all affected individuals.

Plant Sanitation Element

- The Certification Database has been updated to ensure that routine inspections are completed in a timely fashion. A newly added table to the data system will allow the Inspection Supervisor to generate a plant inspection report. The report is presented to the inspectors during the monthly staff meeting.

- The inspectors are entering required follow-up inspection dates into the calendar portion of Outlook. The system reminds the inspector by e-mail of the mutually agreed upon date when the corrective actions were scheduled to be completed. This new procedure has reduced the length of time between the re-inspection date, established during the routine inspection, and the actual completion of the follow-up inspection.

- There are the occasional certified firms who do not always complete the required corrections to their facility by the mutually agreed upon re-inspection date. To assist the field inspectors who have exhausted all reasonable means to gain compliance, a form letter has been created. The official letter is sent certified mail and informs the dealer that ongoing violations are unacceptable. The letter requires the certified firm to submit in writing to the DMR a justification regarding their lack of action and describe in detail a new corrective action plan. This same procedure can be used when a firm has an excessive (determined by the Inspection Supervisor) number of “Key” or “Other” violations during a single routine inspection.

LAMOINE GROWING AREA ACTIVITY SCHEDULE 2002-2003

AREA NAME	AREA	WHO'S WORK	SANITARY SURVEY	2002 ACTIVITY	COMMENTS
Penboscot River	X	Goodwin	1995	Annual	Triennial 2004
Bagaduce River	EA	Smith Boynton	1995	Annual CAMP rev.	Triennial 2004 CAMP current.
Eggemoggin Reach	EB	Goodwin	1996	Annual CAMP rev Triennial	CAMP current. Triennial 2002
Deer Isle	EC	Fendl	1998	Triennial Annual	Triennial 2004
Isle Au Haut	ED	Smith Boynton	1997	Annual	Triennial 2003
Swan's Island	EE	Fendl	1997	Annual	Triennial 2003
Blue Hill Bay	EF	Smith Boynton	1997	Annual CAMP rev	Triennial 2003 CAMP current.
Union River Bay	EG	Smith Boynton	1995	Annual CAMP rev	Triennial 2004 CAMP current.
Southern MDI	EH	Fendl	1990 (new survey 2000)	Sanitary Survey Triennial	CAMP current Triennial 2002
Frenchman Bay	EI	Goodwin	1995	Annual CAMP Rev.	Triennial 2004 CAMP current.
Gouldsboro Bay	EJ	Goodwin	1994	Annual CAMP rev.	Triennial 2003 CAMP current
Dyer Bay	EK	Fendl	1994	Annual	Triennial 2003
Narraguagus River	EL	Fendl	1995	Annual	Triennial 2004
Addison	EM	Smith Boynton	1994	Annual	Triennial 2003
Jonesport / Beals	EN	Goodwin	1994	Annual	Triennial 2003
Chandler River	EP	Fendl	1996	Annual Triennial	Triennial 2002
Little Kennbec	EQ	Goodwin	1996	Annual Triennial	Triennial 2002
Machias River	ER	Goodwin-Clifford	1997	Annual CAMP Rev.	Triennial 2003 CAMP current
Cutler	ES	Goodwin-Clifford	1997	Annual	Triennial 2003
Cobscook Bay	ET	Goodwin-Clifford	1996	Annual Triennial	Triennial 2002

Current Growing Area Problems in Lamoine Lab Growing Areas

EA-MMA training ship waste removal, persistent elevated sampling scores at town dock (optical brightener study); Persistent problems with licensed overboard discharges faulty operation into Northern Bay, Penobscot.

EB-Continue to remove OBDs from Buck Harbor

EC-Station EC 27.8 marginally fails with a P90 score of 51.1. Intensive surveys have not determined the cause. September spike of testing scores in Webb Cove may have been result of rainfall or discharge of crew waste from fishing vessel during repairs.

EE- Continued removal of OBDs and failing inground systems in Burnt Coat Harbor, Swans Island.

EF-Carlton Stream, Salt Pond, Blue Hill shows increased scores. Many beaver up-stream of sampling site. EF 4 continues to have increased P90 value, unknown cause, remote area. Elevated sampling scores most prevalent in September and October. Head of Blue Hill Harbor (EF17) shows cluster of elevated testing scores during summer months. Fall 2002 repair of old Main Street pump station resulted in bypass.

EI-Eddy Brook, Bar Harbor, persistent greatly elevated p90; Increasing GM\P90 scores at Carrying Place, Hancock (optical brightener study) (closure promulgated 6-3-02) and head of Hog Bay, Franklin. Great number of sample have salinities <12 and may represent upland problems (closure promulgated 9-5-01)

EJ-Prospect Hbr and Corea Hbr; Increasing GM\P90 scores at Mill Pond Stream, Gouldsboro.

EK- EK6 P90 score has steadily risen during the past few years. ‘97=40.9, ‘98=73.3, ‘99=77.4, ‘00=55.5. Tabulated data shows typically low scores with an MPN of 1100 in 1998.Elimination of this data from data calculations lowers P90 to 30’s. There has been no change in shoreline development with the exception of the new presence of EK9 seaweed. This seaweed was never present at this station in years past and WQ scores have gone up only since its arrival. (Closure promulgated 11-26-01)

EL- Upper Narraguagus River sampling scores in Milbridge; Turner Cove. Failing system on Bar Island-Bobbys Creek has been refered to MeDEP.

EN- Persistent failing WQ stations along Jonesport Village shorefront. Elevated GM\P90 scores at Grays Brook and Basin Cemetery, Addison. P90 values appear to have stabilized in high 40's. Mud Cove, Great Wasse Island testing station has slowly rising P90 score. Presently meets open criteria.

ER- Sampling stations in the East Machias River with persistent elevated scores and a new Machias Wastewater Treatment Plant operator may impact the management of the conditional area in 2002. MeDEP has conveyed concerns as to effectiveness of plant operation in latter months of 2002. Conditional area is presently classified prohibited and will remain closed until Public Health staff are confident on plants operation. May need to change size of area that is classified conditional when reopened.

ES- Failing IG at head of Haycock Hbr (ES 16; p90 58.4). Put on SCG list in 2001. Established new WQ sampling station farther out in cove (ES 16.5) in 2002. ES 16.5 is presently meeting approved criteria (p90 12.1)

ET- Increased GM\P90 at ET 42, East Brook. ET 103.2, Carrying Place Cove, Eastport has intermittent problem.

EU- Increase GM\P90 at Passamquoddy Indian Reservation, EU 12; Impact of pollution source on Harris Point, water meets approved criteria, clams have marked elevated scores.

Boothbay Growing Area Activity Schedule 2002-2003

AREA	AREA NAME	WHO'S WORK	SANITARY SURVEY	2002/2003 ACTIVITY	COMMENTS
A	Piscataqua River	Livingston	Jan 2002	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done in 2002-2003
B	York Harbor	Livingston	Nov 2001; to be redone 2003	Annual Dec 02 CAMP Review Jan 03	Shoreline surveys done between 1995-1999; to be redone in 2003-2004
C	Cape Neddick	Livingston	Nov 2001; to be redone 2004	Annual Dec 02	Shoreline Survey done in 1999; to be redone in 2004-2005
D	Ogunquit / Wells	Livingston	Nov 2001; to be redone 2004	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done in 1996-2000; to be redone in 2004-2005
E	Cape Porpoise	Livingston	Nov 2001; to be redone 2003	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done between 1995-1999; to be redone in 2003-2004
F	Biddeford	Livingston	Jul 2002	Annual Dec 02	Shoreline survey done in 2002
G	Saco Bay	Livingston	Dec 2001; to be redone 2003	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done between 1992-2002; to be redone in 2002-2004
H	Cape Elizabeth	Livingston	Dec 2001; to be redone 2004	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done between 1998-2002; to be redone in 2004-2005
I	Casco Bay	Livingston	Nov 2001; to be redone 2002	Annual Dec 02 CAMP Review Jan 03	Shoreline surveys done in 2002-2003
J	Freeport / Brunswick	Livingston	Dec 2001; to be redone 2003	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done in 1995-1999; to be redone in 2003-2004
K	Harpswell	Livingston	Jan 2002	Annual Dec 02 CAMP Review Jan 03	Shoreline Surveys done in 1995-1999; to be redone in 2004-2005
L	New Meadows River	Barter	1997, 1999, 2001, 2002	Triennial / Annual Sanitary Survey CAMP rev.	Shoreline Surveys were done 1997, 1999, 2001 and 2002. Most Sanitary Surveys are up to date. Portions of West Bath/Phippsburg are being written in 2002. CAMP is current.

M	**Kennebec River**	**Barter**	**1998, 2002**	**Triennial Sanitary Survey CAMP rev.**	**Shoreline Surveys done between 1996 & 1999. Additional survey 2002 Sanitary Survey written for portions of this area in 1999. Additional survey work needs to happen in 2003. CAMP is current.**
N	**Sheepscot River**	**Barter**	**1995, 1996, 1997 & 1999**	**Triennial Sanitary Surveys CAMP rev.**	**This area needs to be done in sections. Shoreline Surveys were done between 1995 and 1998. New Sanitary Surveys were written in 1999. Additional survey work needs to begin in 2003 CAMP is current.**
P	**Boothbay Harbor**	**Pierce**	**1999**	**Survey and Sampling**	**This area is completely closed due to licensed overboard discharges and water quality. One small open area surveyed 1999. Triennial is due 2002 on this small survey area.**
Q	**Damariscotta River**	**Barter**	**2001 & 2002**	**Sanitary Survey CAMP rev.**	**New Sanitary survey is being written 2002-2003.. CAMP is current.**
R	**John's River**	**Barter**	**2002-2003**	**Sanitary survey 2002-2003**	**Shoreline Survey work done 1996, 2002 remainder will be completed and report written 2003. .**
S	**Medomak River**	**Barter**	**2000**	**Annual CAMP Rev.**	**Sanitary Survey 2000. Will need a triennial 2003 CAMP is current.**
T	**Friendship**	**Pierce**	**1999**	**Annual**	**Sanitary Survey was completed in 1999, Triennial is due in 2002.**
U	**St. George River**	**Pierce**	**1996**	**Triennial CAMP rev.**	**A complete Sanitary Survey was done in 1996 with several addenda's since then. A triennial report is due in 2002. CAMP is current.**
V	**Owls Head**	**Pierce**	**1996 1997 1999 2000 2001**	**Triennial**	**There are several small sanitary survey reports for portions of this growing area. The combined areas 2001 triennial was completed February 2002. A new sanitary will be written for the Seal Harbor region in 2002.**
W	**Western Penobscot Bay**	**Pierce**	**1997 2002**	**Annual**	**Most of this area is closed, Stockton Springs has a new survey in 1997. The 2001 triennial was completed February of 2002. An addendum was written in July 2002 upgrading the classifications in Stockton Harbor. A Sanitary Survey report was written in February of 2002 for portions of**

					Northport.
Y	**Isleboro**	**Pierce**	**1998**	**Annual**	**The open sections of this area had a new Sanitary Survey in 1998. The 2001 triennial was completed February 2002.**
Z	**Vinalhaven, North Haven**	**Pierce**	**1990 & 1998**	**Annual**	**The open sections of this area had new Sanitary Surveys in 1998. A triennial Review is due in 2002. Survey work is currently being updated on North Haven.**

Current Growing Area Problems for Boothbay Harbor Lab Growing Areas

The Maquoit Bay conditional area needs to be enlarged to include part of the Freeport shore, and the head of the Bay need to be made closed prohibited. Additional investigative work need to be done in this area.

The Spurwink River needs to have the season it is open changed from 10/1 – 4/30 to 12/1 – 5/31.
All approved and conditionally approved areas in Quahog Bay should be changed to conditionally approved with an open season of 10/1 – 5/31. Investigative work needs to be undertaken in this area to determine the causes of what appear to be seasonally elevated scores.

Area L: Stations 15, 98, 100, and 102 have marginally failing P90's and will be closely watched, there are no known pollution sources near these stations and there does not appear to be a rainfall correlation at this time. Further investigative work will be undertaken to try to determine the cause if possible.

Area M is currently undergoing more intensive study and data review , with FDA guidance, to determine if classification changes will be necessary

Area Q: Station 35 at the head of the Days Cove depuration area fails to meet the appropriate criteria and needs to be closed. The whole cove seems to be reactive to rainfall and while the area is sewered and the 2001 shoreline survey, stream samples and OB pads didn't identify any problems there had not any significant rains. Additional water and OB pad samples will be collected after rainfall events to see if any point sources can be identified.

Area S: Stations 37, 49.5, 50, 50.5, 51, 52,and 53 can be reclassified from conditionally approved on the STP, which no longer has a river discharge, to open approved. However, station 36, the Dutch Neck launching ramp, needs to be made closed prohibited. The shoreline survey of the area didn't produce any pollution sources, however local crab pickers have been know to intermittently use the area as a dumping ground which may contribute to the sporadic spikes. Both Marine Patrol and local enforcement are aware of the situation but have been unable to stop the dumping. A resurvey of the immediate area will be conducted in 2002 to see if any new sources have developed.

Area U: Station 21 no longer meets criteria for conditionally approved. Survey work and stream sampling have not revealed the source of the problem

Area U: Water quality scores have been improving in both the upper bay depuration area and the Broad Cove depuration area. Both areas now have scores that meet conditionally approved standards; however the last two years have been so dry the water quality scores may not be showing the "true" picture of the area

Area V: Station 16.5 at the mouth of Seavey Cove now has a P90 of 49.9; the cause is unknown

Area V: Two of the stations on the Weskeag River (stations 49 & 50.5), are showing elevated P90 scores. Stream samples and a shoreline survey review have identified a malfunctioning septic system. Additional survey work will be done.

Area W: The southern end of Ducktrap Harbor was closed for shellfish harvest in 1999. Shoreline survey work was conducted in 2000. A malfunction was identified and fixed in this area. The water quality continues to be

too elevated to meet approved standards.Area W: A badly malfunctioning system was identified draining into the Mill Pond at the eastern head of Stockton Harbor. This system will be fixed in the spring of 2002. The Mill Pond area was closed for shellfish harvest.

Area Y: Island stations 21-24 did not have six samples collected this year because the boat broke down during the last collection. A new boat was in the process of being purchased at the time of the breakdown. These stations have received consistently good scores. The most elevated P90 score for these stations is at station #22; with a P90 score of 8.0.